



**Internet and Telephone**

4101 Wild Chaparral Drive, Shingle Springs, CA 95682  
530-672-1078 • 844-4CALNET • <http://www.cal.net>

---

28 December 2017

**VIA ECFS**

Marlene H. Dortch, Secretary  
Federal Communications Commission  
445 12th Street, S.W.  
Washington, DC 20554

Re: GN Docket No. 17-258, *Promoting Investment in the 3550-3770 MHz Band*

Dear Ms. Dortch:

Cal.net, Inc. hereby submits the following comments in **strong opposition** to the portions of the CBRS NPRM which proposes to expand the geographic sizes of PALs and extend their term beyond three years.

Cal.net is a facilities-based fixed-wireless Internet Service Provider ("WISP") and a Competitive Local Exchange Carrier based in California. We focus almost exclusively on the rural markets of the western foothills of the Sierra Nevada Mountains and currently provide broadband services to many thousands of residential and business customers. We offer standard speed packages up to 25 Mbps down / 4 Mbps up, along with dedicated symmetric connections up to 100 Mbps down/up. Our service area is quite rural, and covers 2,041 square miles with an average housing density of about 82 households per square mile. Our "primarily rural" coverage (excluding the few towns we cover) is 1,964 sq. mi. at an average density of 51 homes per sq. mi. In much of our service area, we are the only provider who can offer true broadband speeds.

Cal.net has held an "NN" (3650-3700 MHz) license since 2011, and has invested several million dollars in equipment and infrastructure utilizing and supporting this band. With the opening of the CBRS band (as defined under current FCC rules), we are embarking upon an aggressive growth path of an additional expected investment of over \$10 million in CBRS-enabled fixed-LTE equipment in our rural service areas over the next 30 months. Furthermore, Cal.net was recently awarded a series of broadband grants by the State of California<sup>1</sup> based in part upon the capabilities that the CBRS band provides under the current FCC rules. Together with

---

<sup>1</sup> T17497 Res-F CASF CalNet El Dorado County North:

<http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M157/K804/157804324.PDF>

T-17498 Res F CASF-Cal.net Southern and Eastern El Dorado County:

<http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M163/K983/163983528.PDF>

T-17501 Res C CASF CalNet Amador Calaveras and Alpine Counties:

<http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M167/K945/167945363.PDF>

T-17502 Res F CASF CalNet Tuolumne and Mariposa Counties:

<http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M171/K293/171293428.PDF>

Cal.net's matching capital investments, these grants will bring broadband service to another 15,000 rural households in very sparsely populated areas of California. Additionally, we intend to bid in the forthcoming FCC Connect America Fund reverse auction, and the CBRS band as currently defined will be instrumental for us to deliver the required 100-Mbps service levels. To enable all this growth and to upgrade services in our current market areas, we intend to bid aggressively on Priority Access Licenses ("PALs") – as defined under the current rules – in more than one hundred Census tracts.

The CBRS band, as currently specified, offers several crucial capabilities for WISPs nationwide to deliver broadband to rural Americans. For example, with LTE-based CBRS products, the additional 100 MHz of spectrum will allow us to double our service offerings to 50 Mbps or to redouble to 100 Mbps by using dual-carrier mode, in addition to quadrupling our service capacity (number of users per tower). That additional 100 MHz of spectrum is critical to enabling the carrier aggregation that boosts speed offerings while simultaneously allowing for maximally-efficient frequency reuse over a wide geographic area. The relatively small geographic areas (Census tracts) currently specified for PALs also enables rural WISPs such as Cal.net to surgically optimize those regions where PALs are needed to ensure unrestricted interference-free operations, while maximizing the efficacy of our deployed capital.

The CBRS rules changes proposed in the NPRM would have an extremely detrimental effect on our operations – and those of many other rural WISPs, as well. Among the consequences are:

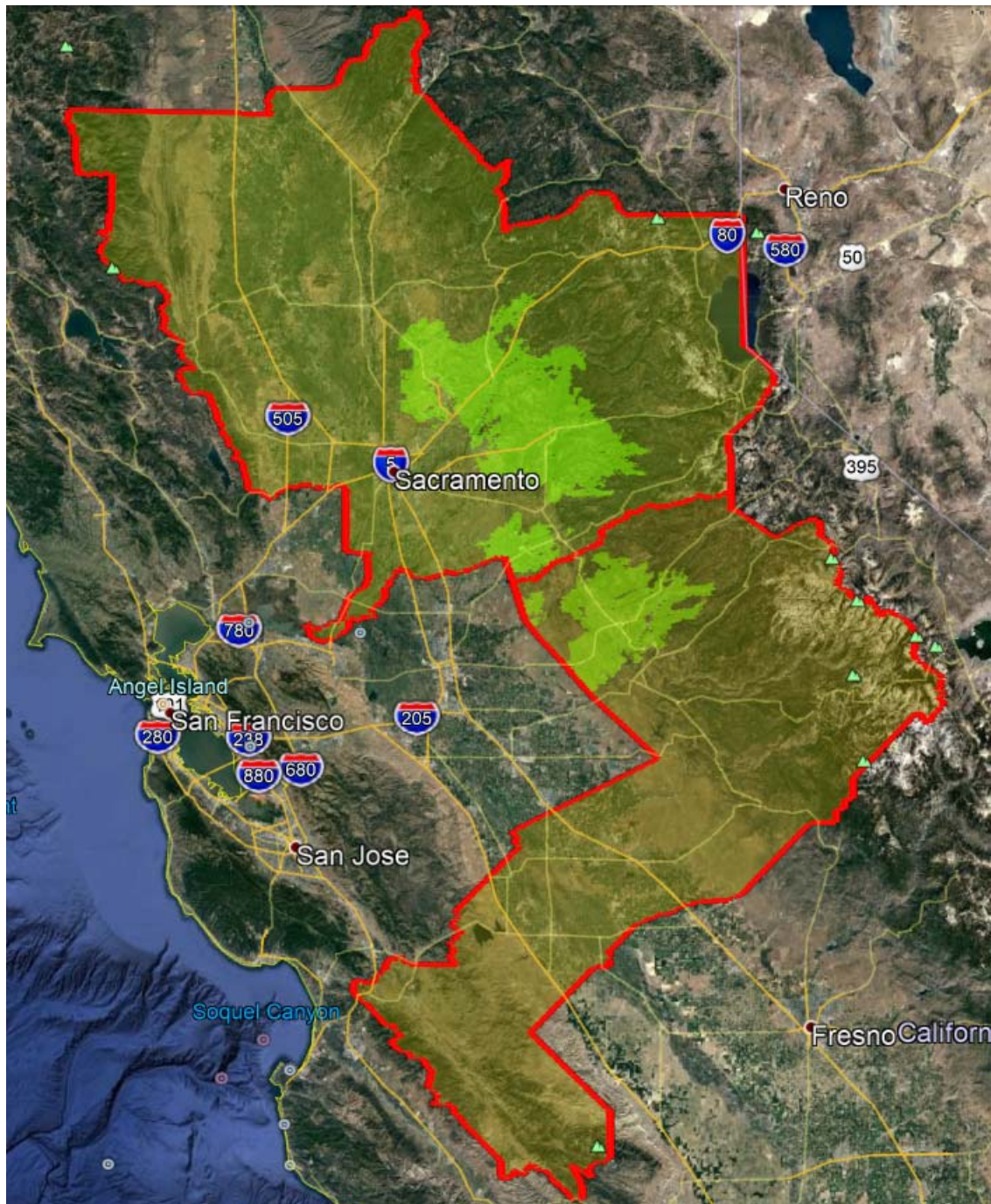
- Enlarging the PALs license service areas from Census tract size to Partial Economic Areas ("PEA") would put the price of PALs out of our reach (and that of most other WISPs, as well).
- Increasing the PALs license term to 10 years would likewise increase costs of obtaining such licenses.

If adopted, these proposed rule changes would effectively guarantee that PAL spectrum is available only to the largest mobile carriers due to their exorbitant cost and that the entire CBRS band would be unavailable to smaller operators.

It is illustrative to compare the economic consequences of PEA-sized PALs versus Census-tract-sized PALs in our specific area. Although it is premature to anticipate the cost of a PAL license (of any size), for the sake of discussion we'll presume the cost of any PAL is a factor of the population within that PAL's geographic boundary.

The map below shows our coverage area in bright green comprising portions of 144 Census tracts as defined by our most recent FCC Form-477 data, overlaid in dull yellow (with red outlines) by the two enclosing PEAs (#22 Sacramento, population 2,722,420; and #142

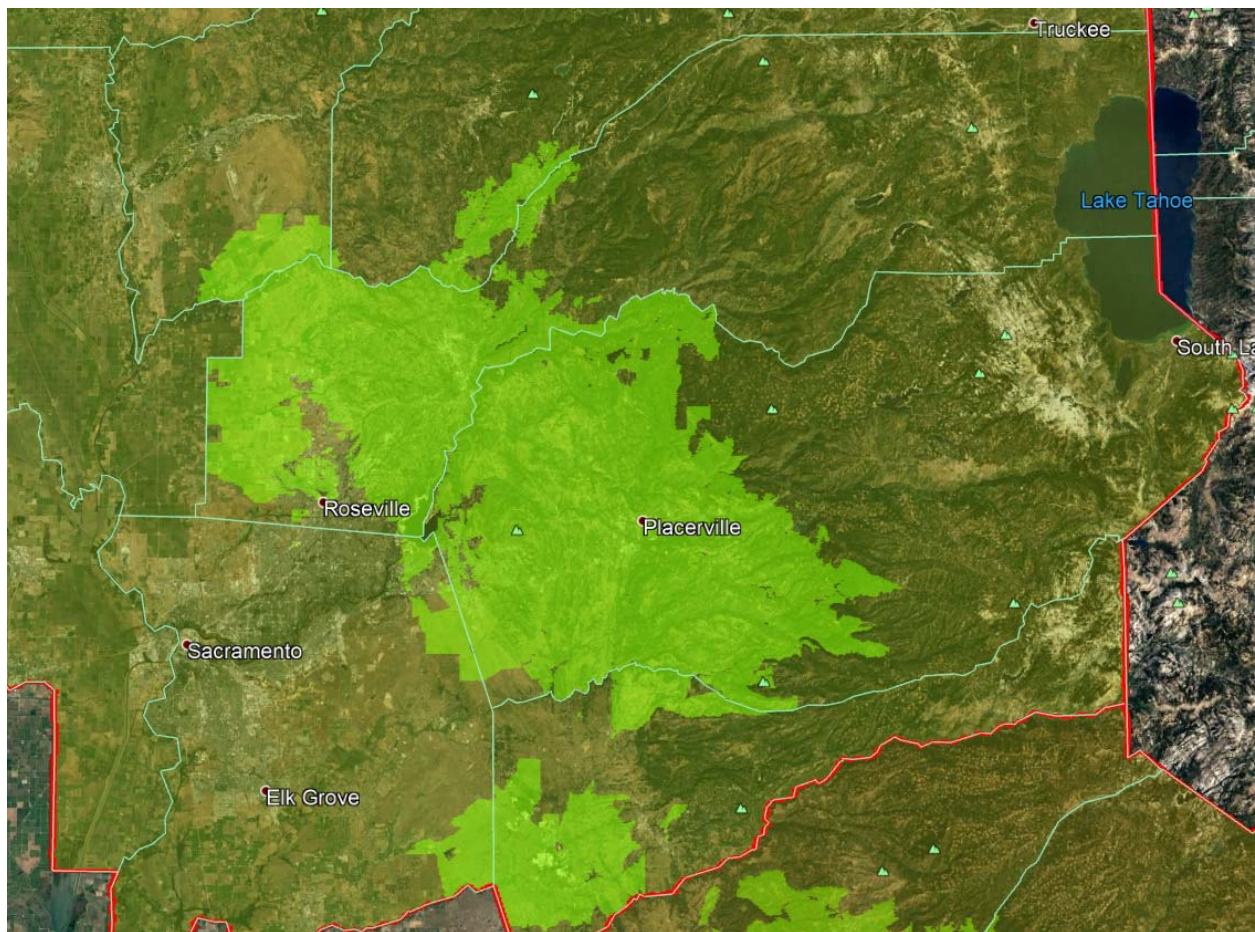
Merced, population 430,256). The total population of the Census tracts comprising our current coverage is 404,149; if we limit that to “primarily rural” tracts only (sparser than 1,000 people per square mile), that’s 82 Census tracts with a total population of 230,558. In contrast, the total population of the two PEAs comprising our service area is 3,152,676. Thus, assuming that we would want to imbue our entire coverage area with PALs and assuming an equivalent population-based valuation regardless of PAL size, our total license cost for PEA-sized PALs would be eight times that for PALs based on Census tracts. If we wish to license only the “primarily rural” areas, the PEA cost would be nearly fourteen times the tract cost.





The NPRM requests comment on whether county-sized PALs are a reasonable compromise between tracts and PEAs. That alternative is also infeasible. Just as PEAs are anchored by a major metropolitan area, many counties are likewise anchored by a substantial urban center.

The map below clearly illustrates the shortcomings of the county-basis approach. Again, our coverage is in bright green and the PEAs are in dull yellow. County lines are illustrated in light blue. Sacramento County has a population of 1,501,335, and is anchored by the City of Sacramento and its suburbs (including Elk Grove). However, large portions of the county along the eastern and southern flanks are very rural. Our “primarily rural” coverage in Sacramento County comprises seven Census tracts with a population of 6,067. Under the county-size PAL concept, it would cost us 247 times (!) as much to acquire the desired PALs to service our coverage area than it would cost with tract-sized PALs. Another example is Placer County, which is anchored by Roseville and extends northeast from Sacramento County all the way to Lake Tahoe. Placer County has a population of 348,432, while our “primarily rural” coverage comprises 24 Census tracts with a population of 75,267. Thus our cost for a county-sized PAL would be nearly five times that of the cost of tract-sized PALs for the desired coverage.



These two examples – comparing PEA-sized PALs and county-sized PALs with the current tract-size PALs – clearly demonstrate that anything larger than a Census tract is economically

infeasible. In these examples, we focus on the “primarily rural” areas of our coverage, because that’s where our primary customer base is. Despite the fact that portions of our coverage include urban areas (because wireless signals don’t stop at arbitrary boundaries), Cal.net has little interest in serving urban communities, because that is not where the need lies – they are already well-served by any number of other providers. In order to laser-focus on the communities most in need of broadband services – the rural areas – tract-sized PALs enable the greatest efficiency of deployed capital.

Regarding the NPRM proposal to extend the term of licenses beyond three years, again a presumption must be made that the duration of a term influences the cost of a PAL in some fashion – perhaps approximately linearly. Thus, a PAL with a ten-year term might be about three times as expensive as one with a three-year term; a five-year term about 50% to 60% more expensive. Renewability may also influence PAL cost, but that’s too subjective to speculate upon. Without a change in geographic PAL sizes, a minor lengthening of the term by itself may have a justifiable and absorbable cost differential, because it corresponds to a greater value. However, tripling the term to ten years has an untenable economic affect through increased difficulty in accessing the greater amount of capital required.

If the longer PAL term is combined with the larger PAL area, the results are catastrophic for economic feasibility. In the Cal.net examples above, with a ten year term the PEA-sized PALs would cost over 40 times that of the current PAL structure. With county-sized PALs and a ten-year term, Sacramento County would cost over 700 (!) times as much, and Placer County would cost about 15 times as much.

The current CBRS policies and rules were brilliantly designed. The three specified access tiers, the small geographic size of PALs, and the three-year term of PALs collectively facilitate the most effective delivery of broadband services to rural communities by allowing pinpoint deployment at the lowest possible cost. At the same time, the current approach is balanced: the rules offer all broadband providers access to the CBRS spectrum, without favoring larger carriers over smaller WISPs or mobile over fixed broadband service technology deployments. Additionally, and unlike the T-Mobile and CTIA proposals, the FCC’s current policies and rules enable numerous new and unique business models to flourish such as the industrial and outdoor Internet of Things (“IoT”), “smart city” networks, heterogeneous networks, neutral host networks, large-venue indoor services, and the formation of private LTE networks for industrial or enterprise use.<sup>2</sup>

---

<sup>2</sup> For a more thorough discussion of innovative use cases for the currently-defined CBRS band, see Letter to Chairman Ajit Pai, Commissioner Mignon Clyburn, and Commissioner Michael O’Rielly of: Center for Rural Strategies; American Library Association; National Hispanic Media Coalition; R Street Institute; Next Century Cities; Schools, Health & Libraries Broadband (SHLB) Coalition; Open Technology Institute at New

The FCC has consistently and unanimously encouraged innovative approaches to providing broadband services to rural communities.<sup>3</sup> The current CBRS structure upholds that goal perfectly and is poised to begin delivering upon it within the next year or so. Conversely, inserting changes in the rules at this late stage in the process would harm these rural areas by engendering unnecessary delays in the rollout of CBRS operations, including delays from rule changes that force the SAS providers to re-tool their software. There's an old adage that goes something like "if it ain't broke, don't fix it" – and in this case there is no "fix" to CBRS that could possibly improve it.

Lastly, I would like to call your attention to the recent comments of Chairman Pai at the December 14<sup>th</sup> FCC hearing on the Commission's Net Neutrality vote,<sup>4</sup> wherein he stated [*emphasis mine*]:

"Look—perhaps certain companies support saddling broadband providers with heavy-handed regulations because those rules work to their economic advantage. I don't blame them for taking that position. And I'm not saying that these same rules should be slapped on them too. What I am saying is that the **government shouldn't be in the business of picking winners and losers** in the Internet economy. We **should have a level playing field and let consumers decide** who prevails.

Many words have been spoken during this debate but the time has come for action. ***It is time for the Internet once again to be driven by engineers and entrepreneurs and consumers***, rather than lawyers and accountants and bureaucrats. It is time for us to act to bring faster, better, and cheaper Internet access to all Americans. It is time for us to return to the bipartisan regulatory framework under which the Internet flourished prior to 2015. It is time for us to restore Internet freedom."

Invoking a PEA-sized PAL and extending the license term to ten years effectively eliminates competition and innovation, and is diametrically contradictory to the Chairman's above-stated philosophy: it picks winners (large telco's) and losers (small local businesses), it creates a biased playing field, and it inhibits innovation and curtails consumer choice via bureaucratic edict.

Small local businesses have the nimbleness and the community-oriented spirit to best address the needs of rural broadband consumers. Restricting the ability of such WISPs to provide innovative services disenfranchises their communities, and is a disservice to rural residents.

---

America; Public Knowledge; Engine; Common Cause; Institute for Local Self Reliance; Benton Foundation; Gigabit Libraries Network; and X-Lab (GN Docket No. 12-354, filed June 19, 2017).

<sup>3</sup> See, for example, Remarks of Commissioner Ajit Pai at WISPAPALOOZA, Las Vegas, Nevada, October 15, 2014 ([https://apps.fcc.gov/edocs\\_public/attachmatch/DOC-329969A1.pdf](https://apps.fcc.gov/edocs_public/attachmatch/DOC-329969A1.pdf)) and Remarks of FCC Chairman Ajit Pai at the Newseum "The Future Of Internet Freedom", Washington, DC, April 26, 2017 ([https://transition.fcc.gov/Daily\\_Releases/Daily\\_Business/2017/db0427/DOC-344590A1.pdf](https://transition.fcc.gov/Daily_Releases/Daily_Business/2017/db0427/DOC-344590A1.pdf))

<sup>4</sup> <https://www.theverge.com/2017/12/14/16777626/ajit-pai-net-neutrality-speech>

The benefits that can be imparted to the community under the CBRS rules currently in place are exemplified by the following recent comments received from Cal.net customers:

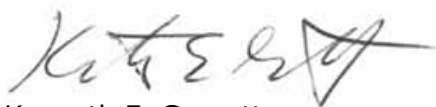
*Diane S.: I love this company. I live out where the only other option is from a satellite company I have heard unpleasant things about. I have had your service over 2 years now. Your employees are always friendly and helpful, and most always able to fix problem over the phone, because usually the problem is on my end, LOL. I am fortunate to be able to receive such excellent and quality service. And can stream and fast downloads... Totally satisfied with my service!!*

*Maureen L. E.: I don't care about the free month, but do want everyone in their Internet service area to know that they offer inexpensive, super-fast and reliable Internet service. My whole neighborhood loves them.*

*Amanda M.: I am emailing you because your employee named Kyle E. (tech support) was amazing. I was having a horrible time with the internet and I was trying everything in the book to get it to work. I called tech support in the worst mood ever and got off the phone being ecstatic! I hope you know a dedicated employee when you see one because this man stayed after hours to help me leave a happy customer! That is a 10 out 10 customer service. In fact I was so pleased with how Kyle E. helped me that I went on yelp and wrote a 5 star review. You have my business for as long as you're open and you can thank Kyle E.!!!!!! I sent you a picture of my review from my working internet on my laptop!!!!!!*

In summation, Cal.net respectfully urges the Commission to promote competition and innovation in the service of rural broadband by maintaining PAL sizes at Census tracts and PAL terms at three years.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Kenneth E. Garnett', with a stylized flourish at the end.

Kenneth E. Garnett  
Chief Technology Officer  
Cal.net, Inc.